

## Notes on the Genus *Chandata*, with Descriptions of Three New Species from Nepal and Taiwan<sup>1)</sup> (Lepidoptera: Noctuidae)

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The monotypic genus *Chandata* MOORE, 1882, with its type-species *Chandata partita* MOORE, 1882, is one of the genera whose taxonomic status remains uncertain among a peripheral assemblage of *Euplexia* STEPHENS and/or *Trachea* OCHSENHEIMER. The arrangement made by HAMPSON (1908) and WARREN (1913) has never been revised or discussed on the basis of genitalic morphology. Through the kindness of Mr. M. OWADA of the National Science Museum (Nat. Hist.), Tokyo, I was given an opportunity to examine two males of *Chandata partita* MOORE and a fairly long series of its close relative from Nepal obtained by him during the zoological expedition to Nepal Himalaya 1979 made by the museum. After a careful study, I have reached the conclusion that the genus *Chandata* MOORE should be given a revalidated status and that the two known species now placed under *Euplexia*, *E. bella* (BUTLER, 1881) and *E. aglaja* KISHIDA et YOSHIMOTO, 1978, should be placed in this genus. On the other hand, I became aware of the fact that the Taiwanese specimens erroneously identified with *Euplexia bella* (BUTLER) by KISHIDA and YOSHIMOTO (1978) belonged to a new species. Further, I was able to examine Nepalese specimens similar to *E. bella* collected by the Lepidopterological Society of Japan Expedition to Nepal-Himalaya 1963 through the courtesy of Mr. S. SUGI, Tokyo. They also represent a different new species. In the present paper, I am going to give a re-definition of the genus *Chandata* MOORE, to describe the three new species and to redescribe *E. aglaja* based on additional material.

### Genus *Chandata* MOORE, 1882

*Chandata* MOORE, 1882, in HEWITSON & MOORE, Descr. new Indian lepid. Ins. Colln. late Mr. W. S. ATKINSON: 113. Type-species: *Chandata partita* MOORE, 1882, by monotypy.

Composed of relatively small species (expanse: 25–32 mm), with conspicuous, two-tone colored maculation of forewing.

Antenna bipectinate or weakly biserrate in male, with its branches finely fasciculated; simple in female. Thoracic vestiture of one scaly tuft behind patagia and two between the distal end of tegulae; prominent two dorsal crests on abdomen.

*Male genitalia*: Uncus long, tapered at tip; tegumen rather broad, with hairy peniculi; valva with simple harpe and pointed ampulla; cucullus well developed, generally bearing marginal spines; saccus short; aedeagus of a moderate tube; vesica swollen at middle, with one or two spine-like cornuti on stout sclerite; a batch of

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minute cornuti on the proximal sclerotized area of vesica.

*Female genitalia*: Papillae anales well sclerotized, forming more or less long ovipositor, swollen at outer side in base, with long apophyses posteriores; 8th sternite widely concave posteriorly at middle, apophyses anteriores of moderate length; ostium bursae well sclerotized and nearly rectangular, not followed by lamella postvaginalis in general; ductus bursae thick and wide, corpus bursae slender, lacking signum; ductus seminalis arising from membranous cervix bursae.

*Early stages*: Partly known in *C. bella* (BUTLER) in Japan (SHIRATORI, 1978, *Matsumushi*, (58): 27–28). Larva is a grass-feeder (Host-plant: *Carex amplifolia displata*, *C. blepharicarpa*), hesperid-like, with an appearance similar to the larva of *Isoteinon lamprospilus* (C. et R. FELDER). Larva lives in shelter made by the leaves of host-plant in day time, leaving it to feed at night.

*Remarks*: This genus can be divided into two species-groups, viz. the *partita* group and the *bella* group, based upon the difference in the structure of antenna and male genitalia, though both the groups are very homogeneous in the structure of male vesica and female papillae anales, ostium bursae, ductus bursae and others.

#### The *partita* group

Composed of two smaller species, with expanse 25–28 mm, and characterized by bipectinate antennae in male and by larger and nearly trigonate cucullus, protrudent ventral margin of valva, and the lack of the fenestrated area on the dorsum of tegumen in male genitalia.

Both the species are Himalayan, moths appearing in autumn, from September to November.

#### *Chandata partita* MOORE, 1882 (Fig. 1)

*Chandata partita* MOORE, 1882, in HEWITSON & MOORE, Descr. new Indian lepid. Ins. Colln. late Mr. W. S. ATKINSON: 114, pl. 4, fig. 16; WARREN, 1913, in SEITZ, Gross-Schmett. Erde, **11**: 134, pl. 16, line h.

*Euplexia partita*: HAMPSON, 1894, Fauna Brit. India, Moths, **2**: 222.

*Trachea partita*: HAMPSON, 1908, Cat. Lepid. Phalaenae Brit. Mus., **7**: 114, text-fig. 20.

*Length of forewing*: 12–14 mm. (Expanse: 27–28 mm.)

*Male genitalia* (Fig. 7): Uncus gently waved; harpe nearly straight, ampulla acutely pointed; cucullus gently and widely concave on the costal margin, with about 50 or more marginal coronal spines; juxta small, pentagonal, with open U-shaped bottom; proximal cornuti of vesica stout and dentate, distal cornutus short.

*Specimens examined*: 2 ♂, Sete (2,600 m), Solukhumbu, Sagarmatha, E. Nepal, Oct. 12, 1979, M. OWADA leg., Genitalia slide: HY-791, preserved in the National Science Museum (Nat. Hist.), Tokyo.

*Distribution*: Sikkim; Nepal.

#### *Chandata c-nigrum* sp. nov. (Fig. 2)

Coloration and pattern of patagia, tegulae, and thoracic vestiture almost the

same as in *C. partita*, and also similar to it in the basic pattern of wing maculation, but slightly smaller in size and with the blackish markings of forewing more developed than in *partita*.

Forewing pale greyish white; an obsolete and diffuse blackish oblique bar in sub-base, where lies a conspicuous blackish bent band from costa to hind margin in *partita*; antemedian line thin and obsolete as in *partita*; a black hooked stria in cellule 2 attaching to antemedian line, which is lacking in *partita*; postmedian line obsolete and diffuse above vein 2, then double, thin and blackish, with an acute black dent along the bottom of reniform, while in *partita* reniform is not edged below with a black dent from postmedian line; subterminal area paler and more whitish than in *partita*, a black stigma above hind angle smaller.

*Length of forewing*: 11–13 mm. (Expanse: 25–27 mm.)

*Male genitalia* (Fig. 8): Uncus longer, more or less swollen before tip; valva with slightly curved harpe and ampulla, its ventral margin strongly protrudent at middle; cucullus more dilated, with its costal margin concave before tip, bearing 60 or more coronal spines; juxta widened caudally, with its bottom wide V-shaped; proximal cornuti smaller than in the preceding species and distal one short, spine-like.

*Female genitalia* (Fig. 13): Ostium bursae deep; ductus bursae rather small, trigonate; corpus bursae continuing from the narrow end of cervix bursae.

Holotype: ♂, labeled "Ringmo 2,780 m/Solukhumbu/Sagarmatha/E NEPAL/9-X-1979/M. OWADA," preserved in the National Science Museum (Nat. Hist.), Tokyo.

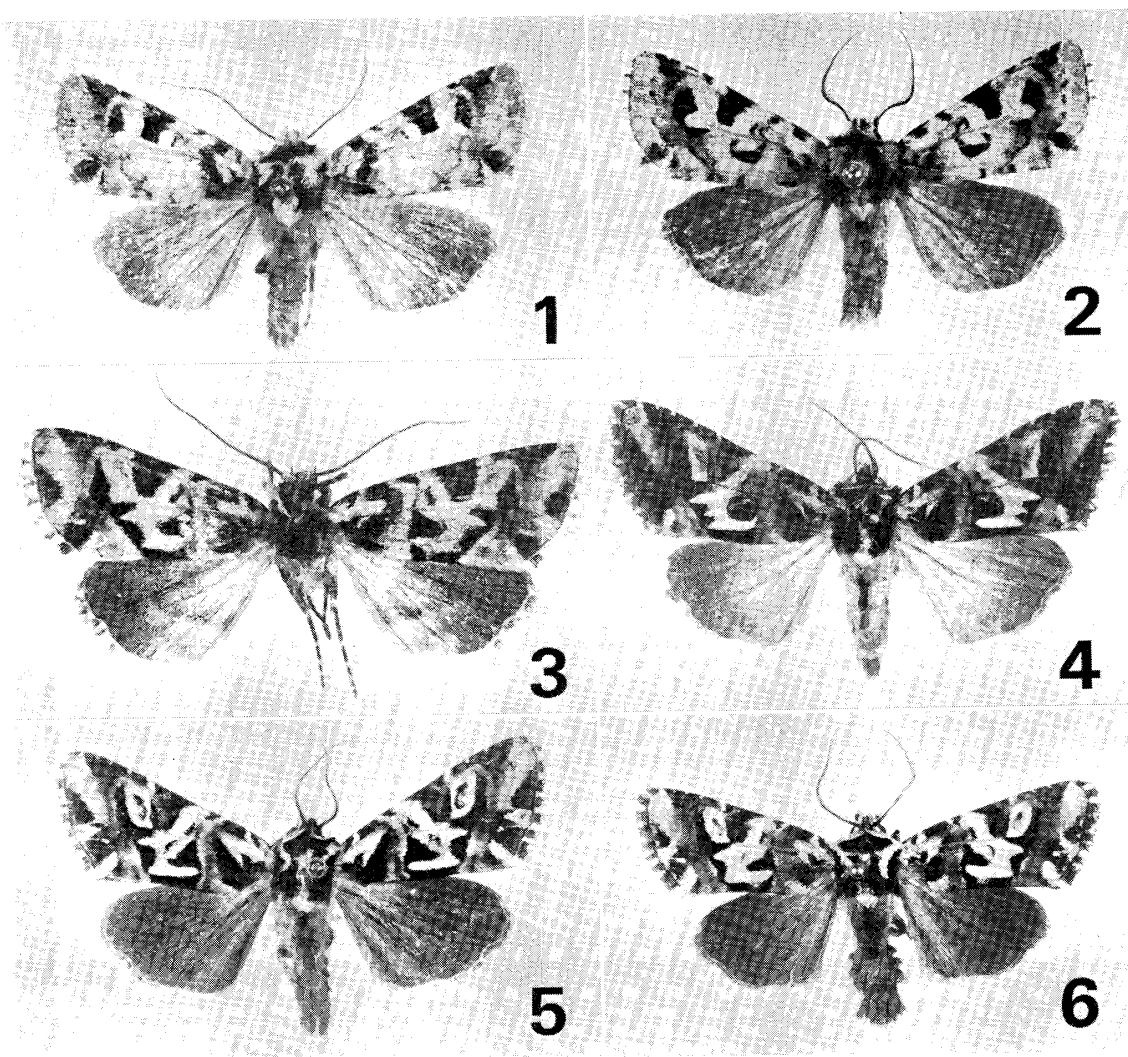
Paratypes: 5 ♂ 2 ♀, same data as the holotype, Genitalia slides: HY-792, HY-799 (♂), HY-805 (♀); 3 ♂ 1 ♀, Jumbesi (2,670 m), Solukhumbu, Sagarmatha, E. Nepal, Oct. 10–11, 1979, M. OWADA leg.; 2 ♂, Nangbug (2,550 m), Solukhumbu, Sagarmatha, E. Nepal, Oct. 5, 1979, M. OWADA leg.; 1 ♂ 1 ♀, Poyan (2,780 m), Solukhumbu, Sagarmatha, E. Nepal, Oct. 6, 1979, M. OWADA leg.; 1 ♂ 1 ♀, Lukta, Nepal, Sept. 30, 1975, native collector leg. These paratypes will be deposited in the National Science Museum (Nat. Hist.), Tokyo, British Museum (Natural History), London, and Dr. H. KEZUKA's and my private collection.

*Remarks*: This new species, sympatric with *C. partita* in Nepal, is easily distinguished from that species by a hooked black marking in cellule 2.

### The *bella* group

Consisting of four larger species, with expanse 27–32 mm, and defined by weakly biserrate antennae in male and by the structure of the male and female genitalia as follows: in male genitalia, tegumen with the fenestrated areas on its dorsum, which are not membranous but normally sclerotized, and semitransparent; valva wider, with its ventral margin nearly parallel to costa and harpe more shortened; cucullus not so strongly dilated ventrally; ductus bursae stout and longer in female genitalia.

One species of this group is Himalayan, and three species are distributed from Taiwan to Northeast Asia, partly sympatric.



Figs. 1–6. *Chandata* spp. 1. *C. partita* MOORE ♂, Nepal; 2. *C. c-nigrum* sp. nov., holotype, ♂, Nepal; 3. *C. aglaja* (KISHIDA et YOSHIMOTO), ♂, Taiwan; 4. *C. tridentata* sp. nov., holotype, ♂, Nepal; 5. *C. taiwana* sp. nov., holotype, ♂, Taiwan; 6. *C. bella* (BUTLER), ♂, Japan, Honshu.

***Chandata aglaja* (KISHIDA et YOSHIMOTO, 1978), comb. nov. (Fig. 3)**

*Euplexia aglaja* KISHIDA et YOSHIMOTO, 1978, *Tinea*, **10**: 143, figs. 1, 3.

*Length of forewing*: 14–16 mm. (Expanse: 29–31 mm.)

*Male*: External appearance including wing maculation same as the female described in the original description.

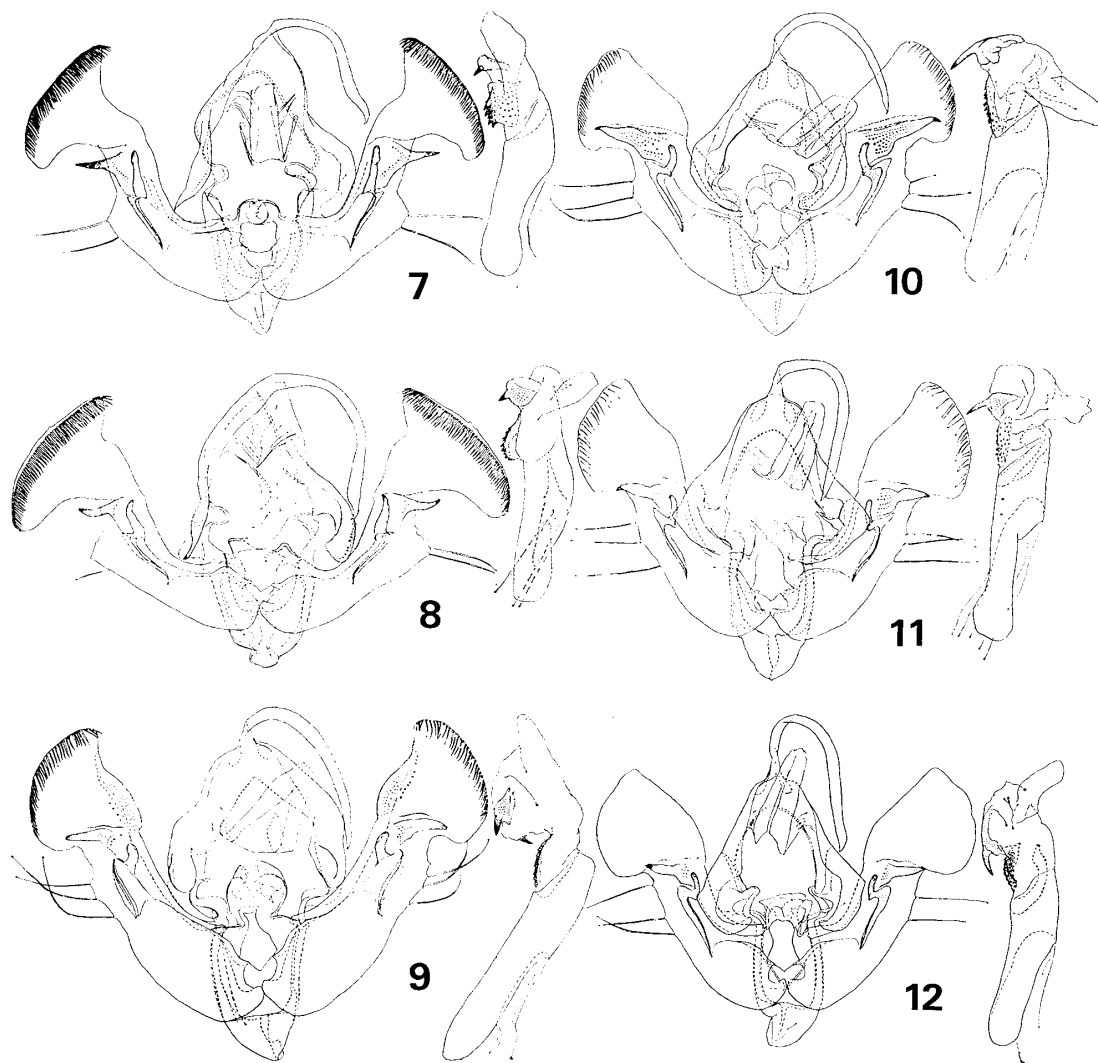
*Male genitalia* (Fig. 9): Valva with thick and curved harpe; cucullus concave on the costal margin before tip, with 30–40 coronal spines; juxta slender and caudally elongated; vesica with a few rows of minute cornuti on the proximal sclerotized area and two spine-like cornuti on its median swelling.

*Female genitalia* (Fig. 14): Ostium bursae shallow, followed by pubescent lamella postvaginalis; 8th sternite gently concave posteriorly, narrowly remaining behind ostium bursae; ductus bursae large and roundish.

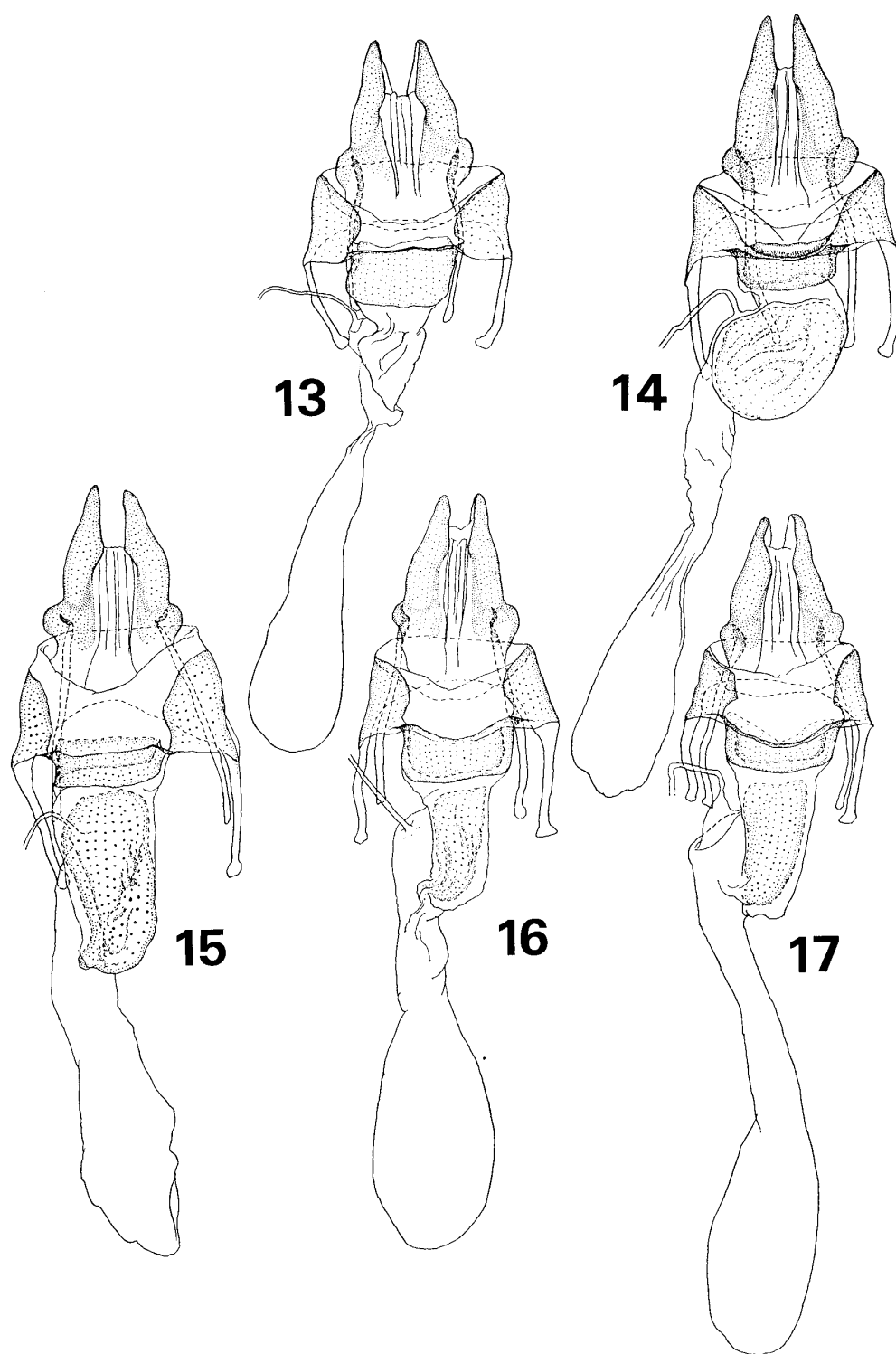
*Specimens examined:* Holotype (♀), Mt. Hohuanshan (3,100 m), Nantou, Taiwan, Aug. 8, 1974, Y. KISHIDA leg.; 1 ♀, same locality, Aug. 7–12, 1978, native collector leg.; 2 ♂ 2 ♀, Nantou, Taiwan, July 1968, native collector leg., Genitalia slides: HY-793 (♂), HY-810 (♀). One female, the type, is in Mr. Y. KISHIDA's collection, 1 ♀ in Mr. T. HARUTA's collection, 1 ♂ will be preserved in the National Science Museum (Nat. Hist.), Tokyo, 1 ♂ in the British Museum (Nat. Hist.), London, and the others in Dr. H. KEZUKA's collection.

*Distribution:* Taiwan.

*Remarks:* This species is genitally unique for a member of the genus in having two spine-like cornuti on the median swelling of vesica in the male and in possessing lamella postvaginalis in the female, but is unquestionably placed in this species-group in view of the similarity of the other morphological features. In appearance, this species seems intermediate between the preceding two and the following three species,



Figs. 7–12. Male genitalia of *Chandata* spp. 7. *C. partita* MOORE; 8. *C. c-nigrum* sp. nov.; 9. *C. aglaja* (KISHIDA et YOSHIMOTO); 10. *C. tridentata* sp. nov.; 11. *C. taiwana* sp. nov.; 12. *C. bella* (BUTLER).



Figs. 13–17. Female genitalia of *Chandata* spp. 13. *C. c-nigrum* sp. nov.; 14. *C. aglaja* (KISHIDA et YOSHIMOTO); 15. *C. tridentata* sp. nov.; 16. *C. taiwana* sp. nov.; 17. *C. bella* (BUTLER).

because in forewing the blackish ground color is so conspicuous as in the following three species and the white markings in the median area are well enlarged as in *C. c-nigrum* sp. nov.

This species is a mountainous element in Taiwan, probably endemic. It is sympatric with *C. taiwana* sp. nov. to be described later.

***Chandata tridentata* sp. nov. (Fig. 4)**

Similar in general appearance to *C. bella* (BUTLER), but larger, with narrower forewing, whose white markings more reduced than in *bella*.

Forewing blackish, both subbase and subterminal areas pale brown; a median white arched band obscurely interrupted by the median nervure, with tridentate outer edge; a lunar black shade attaching to termen from vein 6 to near tornus, with two faint white spots of a few scales in cellules 5 and 4, and with a triangular white speck near tornus; cilia dark fuscous, rayed with pale brownish beyond veins.

*Length of forewing:* 14–16 mm. (*Expanse:* 28–32 mm.)

*Male genitalia* (Fig. 10): Valva wide, its ventral margin gently protrudent at middle; harpe much longer than in *bella*, ampulla of a large projection close to the margin of cucullus, bearing about 30 coronal spines; juxta somewhat constricted laterally, its caudal margin bipeaked; a spine-like cornutus on stout distal sclerite of vesica much longer than in *bella*.

*Female genitalia* (Fig. 15): 8th segment longer than in *bella*; ostium bursae wide but short; ductus bursae larger and longer than in *bella*; corpus bursae short.

*Holotype:* ♂, labeled, "Kambachen, 3950 m/Tamur Valley, N.E. Nepal/14–15 VII. 1963/T. Haruta *et al.*," preserved in the National Science Museum (Nat. Hist.), Tokyo.

*Paratypes:* 1 ♂, same data as the holotype, Genitalia slide: SS-249; 1 ♂, same locality, July 19, 1963, T. HARUTA *et al.* leg., Genitalia slide: HY-811; 1 ♀, Yangma (4,000 m), Tamur Valley, NE. Nepal, July 24, 1963, T. HARUTA *et al.* leg., Genitalia slide: HY-812. A pair of the paratypes will be preserved in the National Science Museum (Nat. Hist.), Tokyo, and 1 ♂ in the British Museum (Nat. Hist.), London.

*Remarks:* This species is easily distinguished from the following two species by the shape of a median white band of forewing.

***Chandata taiwana* sp. nov. (Fig. 5)**

*Euplexia bella* (part.): KISHIDA & YOSHIMOTO, 1978, *Tinea*, **10**: 141, figs. 2, 4 (nec BUTLER).

Most closely related to *C. bella* (BUTLER) and closely similar to it, but a little larger, and the white markings of forewing slightly reduced than in *C. bella*.

*Forewing:* Basal white stria in cell longer than in *bella*, coming near to the front of antemedian line along below subcosta; median white band thinner, with both sides more deeply concave inwards in cellule 2, and its bottom clearly cut off below vein 1, while in *bella* this white marking is thicker and budding below far beyond vein 1; an oblique white shade before median band nearly free from the latter.

*Length of forewing:* 14–16 mm. (*Expanse:* 29–32 mm.)

*Male genitalia* (Fig. 11): Harpe a little longer than in *bella*; ampulla somewhat constricted near base; cucullus with its costal margin gently concave, bearing about 20 marginal coronal spines; juxta wider than in *bella*; spine-like cornutus on distal sclerite of vesica slightly thinner and shorter.

*Female genitalia* (Fig. 16): Ostium bursae somewhat deeper than in *bella*; ductus bursae and corpus bursae shorter than in *bella*.

Holotype: ♂, labeled "FORMOSA/HUALIEN: /Tayuling/1-3. VII. 1973/M. OWADA," preserved in the National Science Museum (Nat. Hist.), Tokyo.

Paratypes: 9 ♂, same data as the holotype; 2 ♂, Mt. Hohuanshan (3,100 m), Nantou, Taiwan, Aug. 8, 1974, Y. KISHIDA leg.; 1 ♂, same locality, Aug. 7-12, 1978, native collector leg., Genitalia slide: HY-795; 1 ♀, Nantou, Taiwan, July 1968, native collector leg., Genitalia slide: HY-808. One male will be deposited in the British Museum (Nat. Hist.), London, 8 ♂ are in the National Science Museum (Nat. Hist.), Tokyo, others in the collections of Messrs. T. HARUTA and Y. KISHIDA, and Dr. H. KEZUKA.

*Remarks:* This new species is presumably endemic to Taiwan, where it is sympatric with *C. aglaja* (KISHIDA et YOSHIMOTO).

### *Chandata bella* (BUTLER, 1881), comb. nov. (Fig. 6)

*Lamprosticta bella* BUTLER, 1881, Trans. ent. Soc. Lond., **1881**: 183.

*Trachea bella*: HAMPSON, 1908, Cat. Lepid. Phalaenae Brit. Mus. **7**: 117, pl. 110, fig. 24.

*Euplexia bella*: WAREEN, 1911, in SEITZ, Gross-Schmett. Erde, **3**: 189, pl. 43, line k.

*Euplexia graeseri* STAUDINGER, 1892, in ROMANOFF, Mém. Lépid., **6**: 463, pl. 7, fig. 7.

*Length of forewing:* Specimens from Hokkaido: 12-13 mm (expanse: 27-28 mm); specimens from Honshu: 13-15 mm (expanse: 28-31 mm).

*Male genitalia* (Fig. 12): Valva with short harpe, ampulla wedge-like; cucullus lacking corona; juxta with both sides gently concave at middle; vesica with one curved spine-like cornutus on its distal sclerite.

*Female genitalia* (Fig. 17): Ostium bursae shallow; corpus bursae long.

*Specimens examined:* Hokkaido: —3 ♂, Mt. Daisetsu-san, Aug. 8, 1975, M. NISHIZAWA et H. YOSHIMOTO leg., Genitalia slide: HY-794. Honshu: —1 ♂ 1 ♀, Sakayu Spa (900 m), Mt. Hakkoda-san, Aomori Pref., July 30, 1977, K. YAZAKI leg., Genitalia slide: HY-796 (♂); 1 ♂, Toshichi Spa (1,400 m), Hachimantai, Iwate Pref., Aug. 2, 1977, K. YAZAKI leg.; 1 ♀, L. Aoki-ko (820 m), Oomachi, Nagano Pref., Sept. 4, 1972, M. TOMONAGA leg., Genitalia slide: HY-100; 1 ♀, same locality, Sept. 5-9, 1974, H. YOSHIMOTO leg., Genitalia slide: HY-806; 2 ♂ 1 ♀, Saiki-rindo (1,500 m), Yanagisawa-tôge, Enzan, Yamanashi Pref., July 23, 1977, H. YOSHIMOTO leg.; 1 ♂, Otome-kôgen (1,200 m), Higashi-Yamanashi-gun, Yamanashi Pref., Aug. 24, 1979, H. YOSHIMOTO leg. All the specimens are in my private collection.

*Distribution:* Japan (Hokkaido, Honshu); Sakhalin; Ussuri.

*Remarks:* The Japanese populations of this species can be divided into two geographic races: specimens from Hokkaido are distinguishable from those from Honshu by smaller size of body, narrower wing shape, and by more developed white markings of forewing. The former seems to be identical with STAUDINGER's *graeseri* from Ussuri figured in the original description, but it seems premature to use *graeseri*

as its subspecific name without examination of materials from the type-locality.

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### 摘 要

1882年にインド北部ダージリンから新属新種として記載された *Chandata partita* MOORE は、その後詳しく調べられないまま、属 *Euplexia* や *Trachea* などに置かれたりしたが、1979年秋の国立科学博物館ネパール遠征隊が得た2♂と、これに近縁の新種多数を調査したところ、属 *Chandata* が一つの自然群であること、並びにこれまで属 *Euplexia* のもとに扱われてきた *E. bella* (BUTLER) コゴマヨトウや台湾の *E. aglaja* KISHIDA et YOSHIMOTO が正しくは属 *Chandata* に置かれるべきものであることがわかった。更に、1963年の日本鱗翅学会ネパール遠征隊が持ち帰ったコゴマヨトウの近縁種、及び台湾のコゴマヨトウ並びに新たに♂個体を加えた *E. aglaja* を含めてこの群を調査した結果、この属は次の通り3新種を含む6種に分類されることがわかった。

1. *Chandata partita* MOORE, 1882 [シッキム・ネパール].
2. *C. c-nigrum* YOSHIMOTO, sp. nov. [ネパール].
3. *C. aglaja* (KISHIDA et YOSHIMOTO, 1978), comb. nov. [台湾].
4. *C. tridentata* YOSHIMOTO, sp. nov. [ネパール].
5. *C. taiwana* YOSHIMOTO, sp. nov. [台湾].
6. *C. bella* (BUTLER, 1881), comb. nov. [日本・樺太・ウスリー].

この属は、雌雄交尾器の形状や雄触角の構造から、さらに2つのグループに分けることが可能であり、それぞれ *partita* グループ (*partita* と *c-nigrum* の2種) と *bella* グループ (残り4種) とした。ただし、後者の内、外観、交尾器の形状とも類似する3種、*bella*, *taiwana*, *tridentata*, は互いに異所的な分布を示すので、亜種の問題も含めて更に検討が必要である。